

**FLAMELESS CANDLE WITH AIR INTAKE CHAMBER AND AIR
OUTFLOW CHAMBER**

FIELD OF THE INVENTION

5 The application relates to candles and, more particularly, to flameless candles.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a side perspective view of one example of a flameless candle with a portion of the sidewall of the housing cut away;

10 Fig. 2 is a front perspective view of the flameless candle of Fig. 1 with the sidewall of the housing removed;

Fig. 3 is a rear perspective view of the flameless candle of Fig. 1 with the sidewall of the housing removed;

Fig. 4 is a partially exploded view of the flameless candle of Fig. 1;

15 Fig. 5 is an enlarged partial side elevational view of a top portion of the flameless candle of Fig. 1 with the sidewall cut away;

Fig. 6 is a top view of a lid that is shown attached to the housing of the flameless candle in Fig. 5; and

20 Fig. 7 is a top plan view of the flameless candle of Fig. 1 with internal components shown in phantom.

DETAILED DESCRIPTION

Shortcomings of the existing art are overcome through the provision of a flameless candle with an air intake chamber and an air outflow chamber.

In one example a flameless candle is provided. The flameless candle comprises a housing defining an enclosure. A wall is positioned in the enclosure to form an air intake chamber and an air outflow chamber. At least one opening is in communication with both the air intake chamber and the air outflow chamber. At least
5 one opening is in communication with the air intake chamber and the ambient air. Finally, at least one opening is in communication with the air outflow chamber and the ambient air.

In another example, a flameless candle is provided. The flameless candle encloses a fan that generates an air stream. A wick is positioned at least partially in
10 the air stream. A wax covered sidewall defines an enclosure that contains the fan and the wick.

In yet another example, a flameless candle is provided with a wax covered housing defining an enclosure. A wall is positioned in the enclosure to form an air intake chamber and an air outflow chamber in the enclosure. An opening in the wax
15 covered housing is in communication with the air intake chamber and the air outflow chamber. A lid is positioned in the enclosure.

These and other features will become apparent from the following detailed description, the accompanying drawings, and the claims.

Turning to Fig.1, one example of a flameless candle 100 is now provided for
20 illustrative purposes. Flameless candle 100, in one example, comprises a housing 102, which defines an enclosure 103. Housing 102 includes a base 104 and a sidewall 106. In one example base 104 is circular and sidewall 106 is cylindrical. Alternatively, base 104 and sidewall 106 could be another shape, such as square, rectangular, octagonal, etc. depending on the needs of the manufacturers, consumers, retailers, etc.

25 The respective planes of base 104 and sidewall 106 extend perpendicular to each other. It should be noted, however, that the respective planes of base 104 and sidewall 106 could have another relationship depending on the shape of flameless

candle 100. For example, if flameless candle 100 were triangular, sidewall 106 would define two planes that intersected base 104 at an angle.

5 A wall 108 is positioned in enclosure 103 and thereby forms an air intake chamber 110 and an air outflow chamber 112. In one example, wall 108 is positioned between the two opposing sides of base 104. In another example, wall 108 is positioned equidistant from the two opposing sides of base 104. A plane of wall 108 extends perpendicular to the plane of base 104. In another example, the plane of wall 108 could meet the plane of base 104 at an angle. Such a relationship may be desirable if, for example, flameless candle 100 were shaped differently, or if a designer
10 wanted to shape air intake chamber 110 and air outflow chamber 112 differently to achieve a particular air flow throughout flameless candle 100. In another example, wall 108 could be positioned parallel to base 104, thereby dividing enclosure 103 into an upper chamber and a lower chamber. Either the upper chamber or lower chamber could then serve as air intake chamber 110 and air outflow chamber 112, and vice
15 versa.

Wall 108 in one example is attached to base 104 using an adhesive. In another example, wall 108 is attached to base 104 using mechanical means, such as screws, brackets, etc. In yet another example, wall 108 is removeably attached to base 104, for example, by providing base 108 with grooves and frictionally securing wall 108 in the
20 grooves. In a further example wall 108 is made integral with base 104, such as by molding the two together.

Referring further to Fig. 1, air intake chamber 110 and air outflow chamber 112 are in communication with the ambient air through an opening at the top portion 114 of flameless candle 100. In one example, the periphery of sidewall 106 and wall 108
25 define two openings 116, 118, one in communication with air intake chamber 110 and one in communication with air outflow chamber 112, respectively. In another example, a wax covered lid having its own openings is placed over openings 116, 118, as will be discussed herein. Regardless of the particular configuration, ambient air is

drawn into air intake chamber 110 and fragrant air is expelled from air outflow chamber 112, as will be further discussed herein.

Fig. 2 shows a front perspective view of flameless candle 100 with sidewall 106 removed. Referring to Figs. 1 and 2, wall 108 contains two openings 202, 204. Openings 202 and 204 are in communication with air intake chamber 110 and air outflow chamber 112 shown in Fig. 1. Opening 202 in one example holds fan 206. Opening 202 allows air to circulate from air intake chamber 110 to air outflow chamber 112. Opening 204, in one example, holds light bulb 208. Opening 202 also serves to allow light to enter both air intake chamber 110 and air outflow chamber 112. Thus, light can be evenly distributed throughout enclosure 103.

Light bulb 208 serves as a light source to distribute light throughout enclosure 103 and to the eye of an observer. Accordingly, flameless candle 100 will appear as if a flame is flickering therein. Light bulb 208 could be a flickering light bulb or a constant light bulb 208. Furthermore, flameless candle 100 could contain electronics to cause light bulb 208 to flicker or remain constant. The electronics could also be program light bulb 208 could to perform combinations of flickering, remaining constant, etc. Light bulb 208 could provide plain white light or could be colored. A second light bulb 208 could be added to provide a combination of colored and white light. Electronics could be used to vary the emission of the colored and white light. It should be noted also that another light source, such as fiber optics, could be used in place of light bulb 108 or light bulb 208 could be omitted altogether. The particular choice of whether to provide flameless candle 100 with a light source, and if so, what type of light source, will depend on the goals and needs of the manufacturer, seller, and consumer.

Referring further to Fig. 2, a wick 210 and volatile fragrance source 212 are mounted to wall 108. In one example, wick 210 and fragrance source 212 are mounted to wall 108 through employment of mounting bracket 213. Alternatively, wick 210 and fragrance source 212 could be mounted to wall 108 through used of another connector, such as an adhesive, screws, etc. Wick 210 and fragrance source 212 are

positioned in air outflow chamber 112 such that wick 210 is located in an air stream created by fan 206.

Wick 210 in one example is formed from a plastic material such as nylon, or in particular ultra high molecular weight, high density polyethylene (HDPE).

5 Alternatively, wick 210 could be formed from another material (e.g., cotton, fiber, capillary, stone, ceramic, etc.) Fragrance source 212 in one example is a liquid dispenser that is designed to disseminate a volatile liquid, such as a fragrance compound, into a room. The fragrance compound emanates from wick 210 at room ambient temperature and is moved into the ambient air via the generated air stream.

10 Wick 210 and fragrance source 212 can release a fragrance in a variety of ways. For example, wick 210 and fragrance source could be episodic, meaning that a fragrance is only released for a short period of time, such as a few hours or even minutes. Alternatively, wick 210 and fragrance source 212 could release a fragrance for longer periods of time, such as days, weeks, or months. The longevity of wick 210
15 and/or fragrance source 212 will depend on the needs of the designers, manufacturers, buyers, and consumers. It should also be noted that wick 210 and fragrance source 212 could be replaced by another device that emanates a fragrance (e.g., gels, solids, fogs, aerosols, etc.), as long as the device that produces the fragrance is positioned such that the fragrance is placed in the air stream created by fan 206.

20 Further referring to Fig. 2, base 104 and one end of wall 108 form compartment 214. Compartment 214, in one example, is utilized to hold power source 216. Power source 216, in one example, is a nine volt battery. It should be noted, however, that other power sources (e.g., AA batteries, C batteries, D batteries, DC adaptors, plug-ins, rechargers, etc.) could be used. Power source 216 drives fan
25 and/or light bulb 208. In another example, compartment 214 could be used for storage of additional wicks, fragrance sources, etc. Switches 218 are provided to activate fan 206 and light bulb 208.

It should be noted that fan 206 does not necessarily have to be motor driven. Fan 206 could be hand or wind drive. In addition, fan could be replaced by any device that is capable of producing an air stream sufficient to propel fragrant air out of flameless candle 100. It should also be noted that fan 206 could be designed to operate continuously or intermittently. The particular choice of fan 206 will depend on the objectives of the designers, manufacturers, and end users.

Fig. 3 shows a rear perspective view of flameless candle 100 with side wall 106 removed. Referring to Figs. 1 and 3, motor 302 of fan 208 is positioned in air intake chamber 110. Base 104 and one end of wall 108 form compartment 304. Compartment 304, in one example, is utilized to house power source 306. Power source 306, in one example, drives fan 206 and/or light bulb 208. Power source 306 could be a C battery, D battery, AA battery, DC adaptor. In another example, compartment 304 could be used for storage of additional wicks, fragrance sources, etc.

Referring to Fig. 4, in one example, base 104 is circular and sidewall 106 is an open ended cylinder, although as it was previously noted flameless candle 100 could be any shape, in which case the shape of base 104 and sidewall 106 would be other than round. Base 104 and sidewall 106, in one example, are covered by wax. One end 402 of sidewall 106 is removeably connected to base 104. In one example, base 104 and sidewall 106 are frictionally engaged through utilization of ridge 404. Ridge 404 could have a slightly smaller diameter than sidewall 106. Accordingly, sidewall 106 would fit snugly over ridge 404. Alternatively, ridge 404 could have a greater diameter than sidewall 106 and sidewall 106 would fit within ridge 404.

Referring to Figs. 5 and 6, lid 502, in one example, is positioned to at least partially cover air intake chamber 110 and air outflow chamber 112. Lid 502, in one example, is wax covered. Accordingly, an observer when looking down on flameless candle 101 would not observe the various components contained within flameless candle 100. Lid 502 includes openings 504, 506. Openings 504 register with air intake chamber 110 and openings 506 register with air outflow chamber 112.

Referring to Fig. 5, the portion of lid 502 containing slots 504, 506 is beveled to form beveled portions 508, 510. Beveled portions 508, 510 fit under top portions 512, 514 of sidewall 106, respectively. Beveled portions 508, 510 and top portions 512, 514 thereby form spaces 516, 518 which draw ambient air into air intake chamber 110 and expel fragrant air from air outflow chamber 112, respectively. Consequently, when fan 208 is on, ambient air is drawn into spaces 516 and through openings 504 into air intake chamber 110. Fan 208 creates an air stream over wick 210. Wick 210 deodorizes the air and fragrant air passes up air outflow chamber 112 through openings 506 and spaces 518 into the ambient air. Accordingly, the two chamber architecture described herein provides a concentrated directed air flow that efficiently draws air into and deposits fragrant air out of flameless candle 100.

Fig. 7 shows a top plan view of flameless candle 100 with the interior components, such as fan 206, light bulb 208, and wick 210 shown in phantom. Because sidewall 106 and lid 502 are wax covered, and because top portions 512 and 514 of sidewall 106 cover openings 506, 508, an observer looking down on flameless candle 100 only will see what appears to be an ordinary candle.

Although exemplary embodiments of the invention have been depicted and described in detail herein, it will be apparent to those skilled in the relevant art that various modifications, additions, substitutions, and the like can be made without departing from the spirit of the invention and these are therefore considered to be within the scope of the invention as defined in the following claims.